IQS259EV02 Evaluation Kit User Manual

IQ Switch® - ProxSense® Series

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1 Introduction

This user manual describes the operation of the IQS259EV02 Evaluation Kit. The EV-Kit is manufactured in two parts, consisting of a mainboard, and a separate plug-in module board. The purpose of the IQS259EV02 EV-Kit is to facilitate application and development engineers in evaluating the IQS259 projected capacitive proximity and touch sensor.

2 EV-Kit Mainboard

Figure 2.1 illustrates the evaluation kit mainboard and the supplied controller module. The mainboard supplies power and other functions to the controller module boards and is easily operated. Simply plug in the desired module board into the mainboard and turn on the mainboard by means of the on/off slide switch (if using battery or external power). Features included in the EV-Kit mainboard:

- Modular design: Connect the supplied IC module into the mainboard, or wire into a prototype for rapid prototyping
- Reference design for IQS259 with user proximity & touch detection ability
- GUI interface indicates proximity AND contact to the buttons
- I^2C^{TM} Data Streaming Mode: For details, see the IQS259 datasheet (EV-KIT requires Azoteq Configuration Tool or Data Streamer)

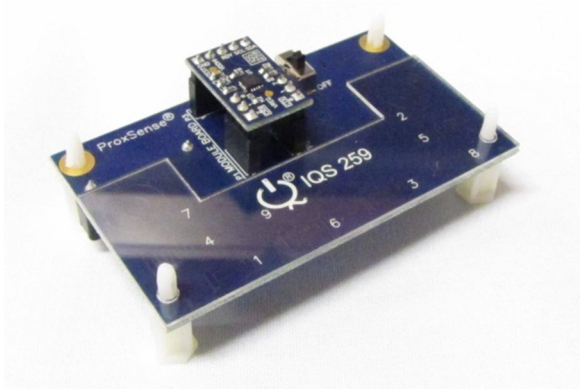

Figure 2.1 IQS259EV02 Mainboard and controller module

Figure 2.2 illustrates the bottom view of the EV-Kit mainboard. The EV-Kit is powered by the Azoteq CTxxx or optionally two 3V coin cell batteries in series, which is regulated to 3.3V and supplied to the module board. The EV-Kit mainboard can also draw power from a USB source by means of the mini-USB connector provided on the mainboard.

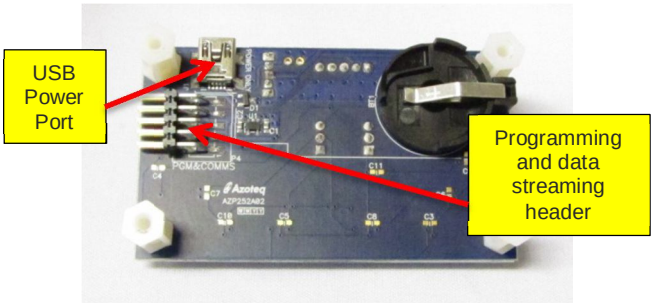

Figure 2.2 Bottom view of EV-Kit mainboard

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The mainboard includes a programming and data streaming header as also illustrated in Figure 2.2.

The EV-Kit is interfaced to a personal computer for data streaming, by means of the Azoteq Configuration Tool (CTxxx). For visual data streaming please utilise the IQS259 GUI and USBProg software, provided on the Azoteq website. (http://www.azoteq.com).

3 Module Boards

3.1 IQS259 Module Board

Figure 3.1 illustrates the IQS259 Module board. Its features include:

- 9 Channel Projected Capacitive IC
- I^2C^{TM} Custom data streaming
- Small and compact PCB layout, which is easily wired to prototype applications

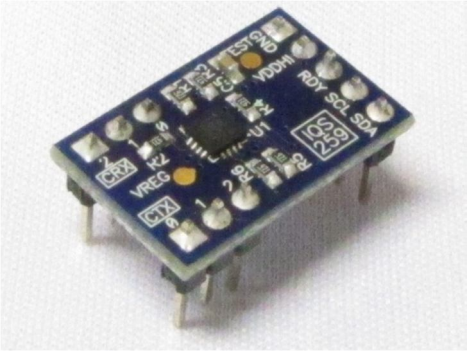

Figure 3.1 IQS259 module board

Descriptions of the components are given in Table 3.1.

Table 3.1 IQS259 Module board component description

Component	Purpose	Typical value
C1, C2	Power supply decoupling capacitors	1µF, 100pF
C3, C4	Internal regulator decoupling capacitors	1µF, 100pF
R7	SDA Pullup Resistor	20 kΩ
R8	SCL Pullup Resistor	20 kΩ
R9	RDY Pullup Resistor	20 kΩ
R1, R2, R3, R4, R5, R6	Sense antenna (CRX and CTX) series resistors (Added ESD Protection)	470Ω

4 IQS259 GUI Interface

For operation and data visualization, it is necessary to interface the IQS259 module to a personal computer by means of the Azoteq CT200 Configuration Tool. The IQS259 GUI is used to stream and visualize data in real-time.

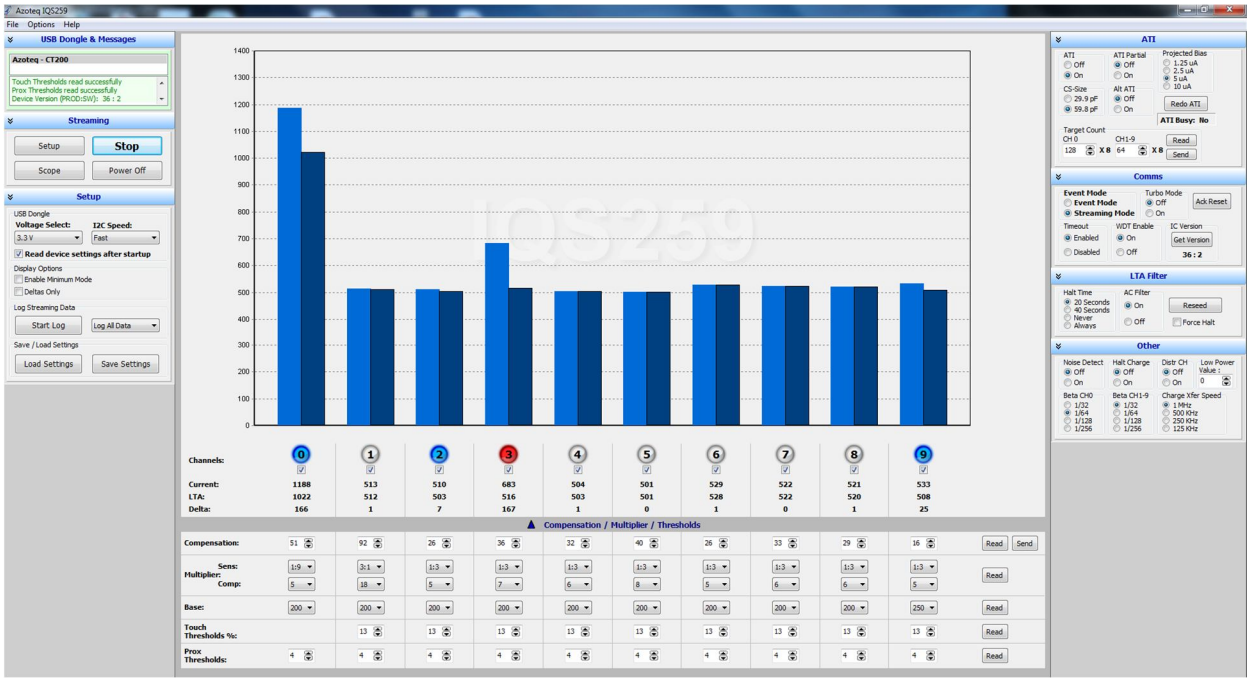

Figure 4.1 IQS259 Graphical User Interface

The IQS259 Software GUI can be downloaded from the following link:

http://www.azoteq.com/images/stories/software/azoteq_iqs259_setup.zip

- Plug in the IQS259 module into the Mainboard
- Connect the Mainboard to the Azoteq CT
- Run the IQS259 Software GUI and Click on “Start”.

The GUI display is illustrated in Figure 4.1 where channel 3 shows a valid touch.

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5 Reference Design

5.1 IQS259 Reference design

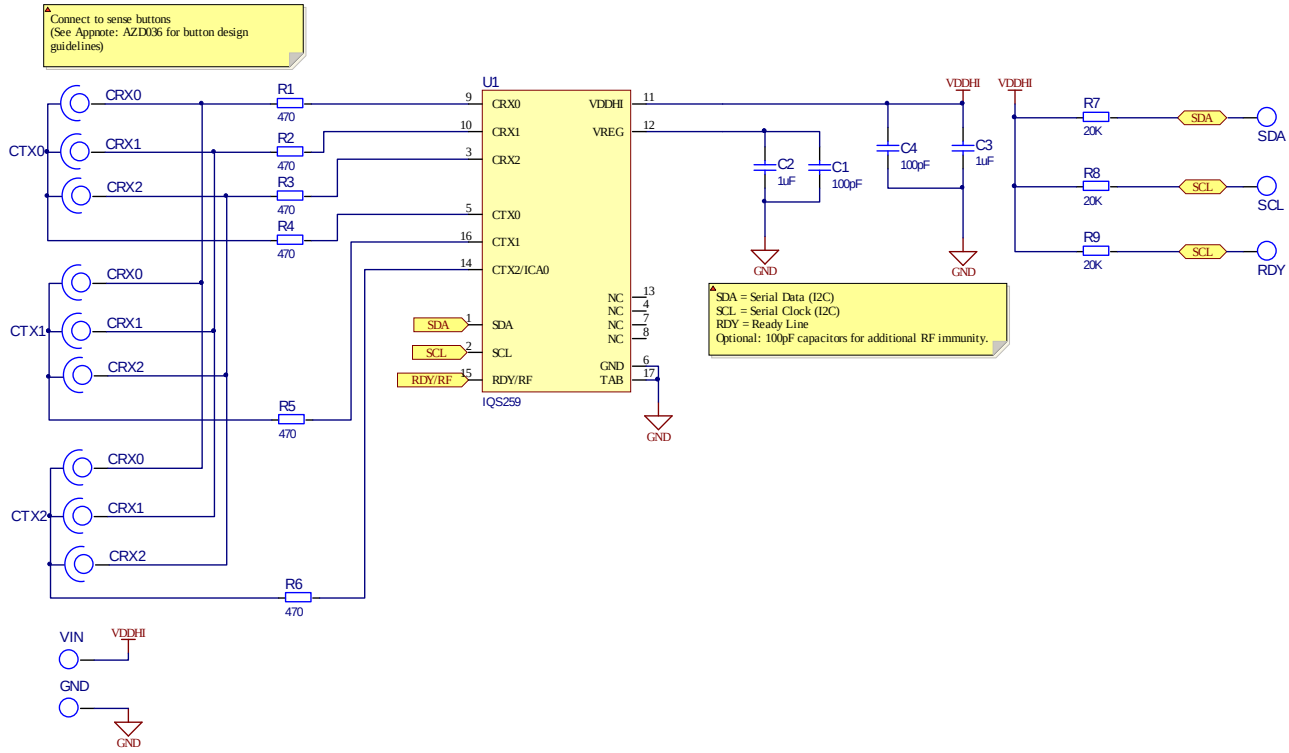

Figure 5.1 IQS259 Reference design

The following patents relate to the device or usage of the device: US 6,249,089 B1, US 6,621,225 B2, US 6,650,066 B2, US 6,952,084 B2, US 6,984,900 B1, US 7,084,526 B2, US 7,084,531 B2, US 7,119,459 B2, US 7,265,494 B2, US 7,291,940 B2, US 7,329,970 B2, US 7,336,037 B2, US 7,443,101 B2, US 7,466,040 B2, US 7,498,749 B2, US 7,528,508 B2, US 7,755,219 B2, US 7,772,781, US 7,781,980 B2, US 7,915,765 B2, EP 1 120 018 B1, EP 1 206 168 B1, EP 1 308 913 B1, EP 1 530 178 B1, ZL 99 8 14357.X, AUS 761094

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